but these and their kind are minor flaws that cannot interfere seriously with the large and helpful part that Professor Jepson's new Flora is bound to play in the study of Californian plants.

MARSHALL A. HOWE

PROCEEDINGS OF THE CLUB

NOVEMBER 24, 1909

The meeting was held at the New York Botanical Garden and was called to order by Dr. E. B. Southwick. Owing to the inclemency of the weather, there were only a few members present.

Dr. W. A. Murrill exhibited and described a phalloid found by him near Cinchona, Jamaica, in January, 1909, which is allied to the anomalous genus, *Phallogaster*, described by A. P. Morgan in 1892. A description of this new phalloid was published in *Mycologia* for January. Dr. Murrill prefaced his remarks with a brief account of the most common phalloids in the vicinity of New York and the species known to occur in the island of Jamaica.

Dr. J. K. Small spoke on "Some Recently Naturalized Plants from Southern Florida." This paper will appear in a forthcoming issue of the Bulletin.

Adjourned.

PERCY WILSON,
Secretary

DECEMBER 14, 1909

The meeting was called to order at the American Museum of Natural History, with President Rusby in the chair. Forty-four persons were present. After the reading and approval of the minutes of the meeting for November 24, the resignation of Dr. J. A. Allen, dated November 17, 1909, was presented and accepted.

The announced paper of the evening on "The Reclamation of the Desert in the San Bernardino Valley" was then presented by Dr. Rusby and illustrated by some seventy lantern-slides. The following abstract was prepared by the speaker.

The distinctions between desert and arid regions were explained and that under discussion was defined as being arid rather than desert, for the most part, although the production of cultivated crops without irrigation was impossible. The first settlement established was a Moravian mission near the present western boundary of Redlands. This was afterwards purchased by the Mormons, who instituted local irrigation. The first extensive irrigation operations were employed by the town of San Bernardino, the present water supply of which is about 1,200,000 gallons, obtained by the deflection of Lytle Creek, besides a large amount from deeply driven wells. This water supplies not only the requirements of the city, but those of a large cultivated area.

San Bernardino is near the western mouth of the large, somewhat horseshoe-shaped valley, from the mountains about which all the water of the valley must come, except that which falls during the rainy season, and which varies from six to twelve inches in the different parts of the valley, the larger amounts falling successively nearer the mountains. The moisture brought by the Pacific winds is precipitated in crossing these mountains during the winter season only. At the greater elevations, 10,000 to 12,000 feet, it is deposited as snow; lower, in the form of copious rains, and in the valley itself in a more or less scanty rainfall. During this period, moisture is not carried to the great interior plain of Nevada, Utah, Colorado, New Mexico, and Arizona, where a dry season then prevails. In the summer, conditions are exactly reversed, no rain whatever falling west of the mountains. It thus happens that the San Bernardino valley gets its natural water supply at a time when cultivation can derive the least benefit from it and the problem is presented of preserving the winter supply and distributing it during the summer. The highly successful operations in the western part of the valley demonstrated the existence of a most fertile soil of great depth, and showed that the sole requirement for a rich agricultural region was an abundant water supply. It was recognized that a town located at the eastern end or top of the valley would be nearer the mountain supply and that its subterranean streams would be

nearer the surface. The town of Redlands was therefore plotted, about twenty-two years ago, in an absolutely arid region. These calculations turned out to be perfect and the town of Redlands is now one of the most beautiful in the world, and surrounded by one of the most fertile of regions. Series of pictures illustrated the arid conditions which antedated irrigation, and were contrasted with others showing the rich orchards, vineyards, and other cultivated tracts of the present day. Land which was absolutely worthless now yields rich dividends on a valuation of from one thousand to two thousand dollars per acre. Other pictures illustrated the snow-capped summits of winter, the humid, forest-clad slopes and the gradually changing flora of the descent to the plain. The Coniferae of these mountains are of exceptional interest, because of their rarity or limited distribution. The very peculiar branch-system of *Pinus Sabiniana*, unlike that of any other pine, was well illustrated by several slides. It was remarked that two fine characteristic specimens of this species exist in the Pinetum of the New York Botanical Garden. Other Coniferae illustrated, besides many other forest species, were *Pinus Coulteri*, *Heyderia decurrens*, *Abies concolor*, and *Pseudotsuga macrocarpa*.

The peculiar problems affecting the conduct of the water to the plains and its distribution to the consumer, arising from the tendency to loss through seepage and phenomenal evaporation, the legal questions arising in regard to water rights, the necessity of governmental regulation of water supplies, the methods of estimating the requirements of various crops, under different conditions, and the methods of measurement and sale of the water were discussed.

A large number of illustrations were presented showing the methods of applying water to the orchards and vineyards. Others illustrated typical fruit trees, in flower and fruit, fruit gathering, drying, and packing. Many slides of very great beauty represented the street planting of trees and other methods employed to beautify the cities and their suburbs.

Adjourned.

Percy Wilson,
Secretary